REMARKS

Claim 1 is the sole claim pending in the present application. Applicant submits arguments for overcoming the newly cited rejections recited in the FINAL Office Action. Accordingly, Applicant respectfully submits that the present application is in condition for allowance.

I. Claim Rejections - 35 USC §103(a)

> *In the FINAL Office Action dated March 20, 2009, claim 1 is newly rejected under 35 USC §103(a) as being obvious over JP 09-260139 A of Takeda et al. in view of JP 09-316630 A of Watanabe et al. and further in view of JP 06-330297 A of Kodera et al.*

In the FINAL Office Action, JP '139 is newly applied and it is stated that:

> "Takeda teaches a perovskite composition $La_{1-x}A_xMnO_z$ ... It is noted that the range of x and z **overlaps** the range of x and α in the instant claim, thus render a prima facie obviousness".

Applicant respectfully submits that this interpretation of JP '139 is in error and that the ranges do not overlap. Rather, the range required by JP '139 is the opposite of that required by claim 1 of the present application and teaches away from that required by the present invention.

The Abstract of JP '139 states, as follows:

> "An oxide which as a Perovskite structure $La_{1-x}A_xMnO_3$ ... whose main elements are La and Mn and **which conforms an inequality: Mn/(La+A) < 1** and which is expressed, for instance, by a formula: $La_{1-x}A_x\mathbf{Mn_y}O_z$ (**wherein $0.7 \leq y \leq 1.0$**)".

Accordingly, JP '139 requires that Mn/(La +A) **must not equal** 1. Rather, JP '139 clearly teaches to one of ordinary skill in the art that the main elements must conform an inequality in which Mn/(La + A) is less than one. Also, note from above that this requires a formula with Mn_y where "y" is greater than or equal to 0.7 and **must be less than one**.

In contrast, claim 1 of the present application requires $Ra_{1-x}A_xMnO_{3-\alpha}$. From this required formula, it is clear that Mn/(Ra + A) **must be equal to one**.

Thus, the range of x and z disclosed by JP '139 clearly **do not overlap** the range of x and α required by claim 1 of the present invention. In fact, JP '139 requires the opposite to that required by claim 1 (JP '139 requires the Mn/(Ra + A) must not equal one and claim 1 of the present application requires a formula that requires that Mn/(Ra + A) must equal one). Accordingly, the teaching provided by JP '139 to one of ordinary skill in the art teaches-away from that required by the present invention.

"Teaching away" is the antithesis of the art suggesting that the person of ordinary skill in the art go in the claimed direction. Essentially, "teaching away" is a per se demonstration of lack of obviousness. In re Fine, 873 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

For at least the above reason, Applicant respectfully submits that claim 1 of the present application is patentable and is not obvious over JP '139 in view of JP '630 and further in view of JP '297. Accordingly, Applicant respectfully requests reconsideration and removal of the rejection.

With respect to JP '139, it should also be understood that this reference clearly fails to provide any teaching to one of ordinary skill in art with respect to providing the material of high density. Further, JP '139 teaches on Paragraph No. 0018 that a thin film is formed via use of a "laser ablation method". The reason for this is that the density of a target material for use during a laser ablation process or an ion beam process is not required to have high density. Thus, one of ordinary skill in the art is not taught by JP '139 how such a material could be made of a high density sufficient for use in a DC or RF sputtering process.

As discussed in Applicant's last Amendment, at the time of the present invention, a sputtering target of the claimed composition and high density for depositing a thin film via ordinary sputtering (i.e., DC sputtering or RF sputtering) did not exist. (See page 1, lines 26-28, of the present application, as filed.) Further, with this kind of material, its density and strength were insufficiently low and there were problems with fractures and cracks occurring during target manufacture, transfer of the target, and DC or RF sputtering operations. (See page 2, lines 1-5, of the present application, as filed.) Still further, low density provides another problem in that the unwanted generation of particles increase during the deposition process thereby deteriorating the quality of the thin films produced and increasing the amount of defective products produced. (See page 2, lines 1-5, of the present application, as filed.)

As best stated on page 2, lines 8-10, of the present application, as filed: "Therefore the improvement of density in this kind of target existed as an ***extremely formidable challenge***."

Based on the inventor's significant inventive contribution, the present invention provides a sputtering target that inhibits the occurrence of fractures and cracks and inhibits the generation of particles during sputtering. Thus, the present invention greatly improves yield with respect to manufacture and use of the target and greatly improves the quality of the film deposited via DC or RF sputtering and reduces the generation of defective products.

JP '139 neither discloses nor renders obvious the inventor's contribution as recited in claim 1 of the present application. At the time of the invention, one of ordinary skill in the art is simply not enabled by the cited reference to produce a sputtering target required by claim 1. Accordingly, Applicant respectfully submits that the art of sputtering targets for use in sputtering thin films has been advanced, that the invention is meritorious, and that claim 1 is worthy of allowance.

Further, with respect to JP '630, it discloses a sintered compact sputtering target expressed with the general formula $Ba_{1-x}Sr_x\underline{\mathbf{Ti}}O_{3-y}$ with an oxygen deficiency. It is clearly of a different composition that that required by JP '139. In addition, a sintered compact sputtering target represented by $Ba_{1-x}Sr_xTiO_{3-y}$ is an $A^{2+}B^{4+}O_3$ type (substitute Sr of A site with Ba) perovskite. One of ordinary skill in the art recognizes that such a perovskite oxide is a type 2-4 perovskite oxide formed from bivalent Ba and Sr and quadrivalent Ti. In contrast, one of ordinary skill in the art would recognize that the perovskite described in JP '139 is a so-called layered perovskite (i.e., a so-called laminated perovskite of type 3-3).

Accordingly, the composition, structure, and physical properties of the material of JP '630 are clearly different from that disclosed in JP '139. Applicant respectfully submits that one of ordinary skill in the art would not find it obvious to modify JP '139 according to the disclosure provided by JP '630 and there is simply no conclusive evidence to say that such a combination would even be successful at providing the target required by claim 1 of the present application. For this additional reason, Applicant respectfully submits that claim 1 of the present application is patentable and non-obvious over JP '139 in view of JP '630 and further in view of JP '297.

JP '297 also discloses an $A^{2+}B^{4+}O_3$ type perovskite. Further, while JP '297 actively introduces oxygen defect by performing sintering in a reduced atmosphere to achieve low resistivity, the present invention attains conductivity in a different manner by substituting A having a different valence to the Ra site to obtain a solid solution. Accordingly, the expression mechanism of conductivity required by the present invention and that required by JP '297 are clearly different. Thus, even if one of ordinary skill in the art were to use the technology

disclosed by JP '297 with respect to the material of JP '139 having different composition, structure, and physical properties, it would still not be possible to achieve the present invention.

Accordingly, the composition itself required by claim 1 of the present application is different from the perovskite composition described in JP '139. In addition, JP '630 and JP '297 relate to perovskite that is structured differently from JP '139 and of different compositions with significantly different physical properties. Accordingly, one of ordinary skill in the art would not find it obvious to utilize the disclosure of JP '630 and JP '297 on the material disclosed in JP '139. Applicant respectfully submits that it would not be obvious or possible for one of ordinary skill in the art to produce the target required by claim 1 of the present application based solely on the disclosures of JP '139, JP '630 and JP '297. Further, one of ordinary skill in the art would not find such a combination obvious based on the different compositions, structures, and physical properties of these materials.

For these reasons, Applicant respectfully requests reconsideration of the references and rejection and submits that claim 1, as amended, is patentable over JP '139 in view of JP '630 and in view of JP '297. Accordingly, Applicant respectfully requests removal of the rejection.

II. Conclusion

In view of the above arguments and remarks, Applicant respectfully submits that the rejections newly cited in the FINAL Office Action have been overcome and that the present application is in condition for allowance. Thus, a favorable action on the merits is therefore requested.

Please charge any deficiency or credit any overpayment for entering this Amendment to our deposit account no. 08-3040.

Respectfully submitted,
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